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School engagement trajectories in adolescence: The role of peer likeability and popularity

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ABSTRACT

This accelerated longitudinal study examined how peer status (i.e., peer likeability and popularity) is involved in adolescents' school engagement trajectories. A large sample of students was followed from Grades 7 to 11 (N = 1116; M_{age} = 13.79 years). Students' school engagement and peer status were assessed using self-reports and peer nominations, respectively. Latent growth curve modeling revealed that different engagement dimensions were differentially associated with peer status. Likeability was positively related to both behavioral and emotional engagement in Grade 7, but not to behavioral and emotional disaffection. In contrast, popularity was related to less behavioral engagement and more behavioral disaffection at the start of secondary education, but not to emotional engagement and disaffection. Moreover, students' aggressive behavior moderated the relation between popularity and behavioral engagement in Grade 7, denoting the risk of popularity in combination with average and high levels of aggression. Results suggest that adolescents' popularity may interfere with meeting academic demands in general and with showing engagement in particular.

Research suggests that student behavioral and emotional involvement in academic activities declines across their educational career (Archambault, Janosz, Morizot, & Pagani, 2009; Fredricks, Blumenfeld, & Paris, 2004). This places students at increased risk of school drop-out (Janosz, Archambault, Morizot, & Pagani, 2008), academic failure (Johnson, McGue, & Iacono, 2006), and internalizing and externalizing problem behaviors (Li & Lerner, 2011). Although several studies have tried to identify factors in students (i.e., gender) and their school environment (i.e., teacher-students relationships) that predict school engagement trajectories, only limited research has focused on students' peer relationships (Kindermann, 2007). However, in order to fully understand how school engagement develops during adolescence, more insight is needed regarding the role that peer relationships play in shaping students' school engagement trajectories. Especially in adolescence, peer relationships play a key role in students' life in general, and their academic development in particular (Li, Lynch, Kalvin, Liu, & Lerner, 2011). The current study aims to extend prior research by using a three-wave longitudinal design to investigate the role of peer status in shaping students' school engagement trajectories. Additionally, by taking a multidimensional perspective on school engagement (i.e., behavioral and emotional engagement and disaffection), as well as on peer status (i.e., peer likeability and popularity), this study aims to provide differentiated insights in the association between adolescents' school engagement and their peer social environment. These differentiated insights could be relevant for interventions, as engagement is found to be malleable and responsive to changes in the social environment (Appleton, Christenson, & Furlong, 2008). Furthermore, this study examines how adolescents' aggressive behavior moderates the association between popularity and engagement.

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1. School engagement

For the purposes of this study, school engagement was defined as the quality of students' involvement with the endeavor of schooling (Skinner, Furrer, Marchand, & Kindermann, 2008a). Using a motivational conceptualization of engagement, the current study focuses on students' behavioral and emotional involvement in learning activities (Skinner et al., 2008a). Whereas behavioral engagement is conceptualized in terms of students' action initiations, efforts, attention in class, and absorption of information, emotional engagement refers to students' emotional states during learning activities, such as interest, enjoyment, and enthusiasm (Skinner et al., 2008a). In line with Skinner's conceptual model, the current study distinguishes between engagement and disaffection. Accordingly, disaffection not only refers to the absence of engagement, but also to behaviors and emotions that reflect maladaptive motivational states (Skinner et al., 2008a). Behavioral disaffection includes behaviors such as withdrawal, distraction, unpreparedness, and passivity during learning activities, whereas emotional disaffection refers to emotions such as boredom, disinterest, anxiety, and frustration (Skinner et al., 2008a).

Recently, research showed that these engagement dimensions have differential educational outcomes, thus emphasizing the importance of investigating both behavioral and emotional, as well as positive and negative dimensions of engagement (Wang, Chow, Hofkens, & Salmela-Aro, 2015). For instance, research has consistently shown associations between behavioral engagement and achievement-related outcomes (e.g., standardized tests and grades; Wang & Eccles, 2012a). For emotional engagement, research remains inconclusive regarding this association (Fredricks et al., 2004); though, it is possible that the effect of emotional engagement is operating through behavioral or cognitive engagement (i.e., investment in learning) (Archambault et al., 2009; Wang & Eccles, 2012a). In contrast, both behavioral (e.g., absenteeism) and emotional (e.g., feelings of estrangement, alienation, social difficulties and isolation) disaffection have been related to school dropout (Cairns & Cairns, 1994; Finn, 1989; Janosz et al., 2008).

The engagement dimensions are not only distinct in predicting educational outcomes, but in their longitudinal trajectories as well. For instance, a study by Wang et al. (2015) showed that emotional engagement significantly declined between Grades 9 and 11, whereas emotional disaffection (i.e., school burnout) remained stable over time. Previous research has found that these trajectories are characterized by variation within and between individuals (Janosz et al., 2008; Wylie & Hodgen, 2012). Nevertheless, prior research has predominantly focused on student (i.e., gender) and school (i.e., school size) characteristics as predictors of these trajectories. For instance, researchers have shown that during secondary education, girls often display higher levels of and less steep decreases in behavioral and emotional engagement compared to boys (Li & Lerner, 2011; Wang & Eccles, 2012a). At the classroom level, positive and supportive relationships with the teacher can increase students' engagement (Engels et al., 2016; Roorda, Koomen, Spilt, & Oort, 2011). Besides teachers, peer relationships play an important role in the development of students' engagement (Juvonen, Espinoza, & Knifsend, 2012; Li et al., 2011). This is particularly true in adolescence, a period characterized by a normative decline in engagement, as well as increasing importance of peer relationships. Yet, only limited research has examined the relationship between adolescents' peer status and their engagement trajectories in a differentiated manner.

1.1. Peer status

Peer status is one area in the field of peer relationships that remains understudied in relation to school engagement (Kiefer & Wang, 2016). Peer status is a multidimensional construct that reflects the social position of an individual in his or her peer group (Rubin, Bukowski, & Parker, 2006). This study focuses on two interrelated, but distinct aspects of peer status: likeability and popularity. Peer likeability describes a person's degree of acceptance by his or her peer group. It is often determined by the difference between acceptance (i.e., being liked) and rejection (i.e., being disliked) (Rubin, Bukowski, & Laursen, 2009). Students with a high degree of likeability display, on average, higher levels of prosocial behavior and lower levels of aggression (Rubin et al., 2006), and are described by their peers as more cooperative, helpful, considerate, and socially outgoing (Asher & Coie, 1990). In contrast, popularity expresses a person's social visibility or prominence in the peer group, and can be conceptualized as the difference between popularity (i.e., being seen as popular) and unpopularity (i.e., being seen as unpopular) (Cillessen, Schwartz, & Mayeux, 2011). Students with a high degree of popularity are often described as highly prominent and manipulative to maintain their high position in the social hierarchy (Farmer, McAuliffe Lines, & Hamm, 2011). Especially in adolescence, peer relationships become increasingly complex as adolescents differentiate more between being liked and being popular (Rubin et al., 2006; van den Berg, Burk, & Cillessen, 2015).

The different behavioral patterns of popular and well-liked students could also be differentially predictive of the school engagement dimensions. For instance, the positive social and academic behaviors of highly liked students may contribute to positive teacher-student relationships (De Laet et al., 2014), which could contribute to their behavioral and emotional engagement (Roorda et al., 2011). On the other hand, popular students, on average, tend to show more dominant, aggressive, and disobedient behavior (Gorman, Kim, & Schimmelbusch, 2002), which may increases the level of teacher-student conflict (De Laet et al., 2014). In turn, this negative teacher-student relationship could place more popular students at risk for becoming behaviorally disaffected from school (Engels et al., 2016).

1.2. Peer likeability and engagement

Research has revealed that peer likeability is positively associated with academic motivation, satisfaction with school, pursuit of goals to learn, interest in school, perceived academic competence, and grades (Wentzel, 2009). More specifically, being accepted in the peer group helps students to develop a sense of commitment to school and engagement in learning activities, as accepted students

feel included and secure in classroom activities (Buhs, Ladd, & Herald, 2006; Newcomb, Bukowski, & Pattee, 1993). Whereas most evidence on the relation between peer likeability and school engagement stems from cross-sectional research, a few longitudinal studies have been conducted. For instance, a study by De Laet et al. (2015) found no effect of peer likeability on initial levels of behavioral engagement in 4th grade. However, students with high levels of likeability had less steep declines in behavioral engagement between Grades 4 and 6 compared to highly disliked children. This suggests that peers can help students to stay behaviorally engaged throughout upper elementary school.

In secondary school, Wang and Eccles (2012b) investigated the effect of adolescents' peer relationships on trajectories of engagement from Grades 7 to 11. They found that perceived peer acceptance was associated with reduced declines in participation in extracurricular activities (i.e., behavioral engagement) and reduced declines in sense of identification with the school (i.e., emotional engagement). As this study used student self-reports for both peer relationships and school engagement, shared informant bias may have inflated these relations. Additionally, as stated by the authors, self-reports of peer acceptance do not necessarily reflect the actual likeability of students as evaluated by peers (Rubin et al., 2006). Another short-term longitudinal study in adolescence (i.e., follow-up over four consecutive semesters) showed that peer likeability in Grade 9 was not predictive of behavioral indicators of student engagement (i.e., school attendance) in the next grade (Schwartz, Hopmeyer Gorman, Nakamoto, & McKay, 2006). The authors noted that this could have been caused by the short-term design of their study that limited them to detect any meaningful changes in school adjustment that may have been visible in long-term longitudinal designs (Schwartz et al., 2006).

In general, previous studies point to the protective role of likeability in students' behavioral and emotional engagement. However, it remains unclear how peer-rated likeability relates to school engagement trajectories throughout secondary education. Yet, this period is particularly interesting as it is characterized by a normative decline in engagement, as well as increasing importance of peer relationships. Moreover, no previous study examined dimensions of behavioral and emotional engagement, as well as behavioral and emotional disaffection all together in relation to likeability. The current study was designed to fill these gaps.

1.3. Popularity and engagement

In adolescence, popularity becomes increasingly important for students and becomes prioritized over other domains, such as achievement, rule adherence, and school engagement (Galván, Spatzier, & Juvonen, 2011; LaFontana & Cillessen, 2010). Several studies have found evidence for a negative association of popularity with school engagement. For instance, using hypothetical vignettes, Galván et al. (2011) found that children who were described as academically engaged were perceived as cooler by peers in Grades 4 and 5, but as less cool by students in Grades 6 and 7. Similarly, a study among early adolescents found that 8th graders were more reluctant to present themselves as effortful and hard working to popular peers than to teachers, in contrast to younger students (4th and 6th grade) who were equally willing to show themselves as effortful to both teachers and popular peers (Juvonen & Murdock, 1995).

Yet, previous research has predominantly focused on the negative relation between popularity and behavioral aspects of engagement. As a result, it remains unclear how popularity relates to emotional engagement. For instance, more popular students may fail to conform to adults' school norms regarding behavioral engagement, yet enjoy going to school due to their high status in the classroom (i.e., higher levels of emotional engagement, but expressing disengaged behaviors in order to maintain their status). Alternatively, their decreased behavioral engagement may go hand in hand with reduced enthusiasm for academics and increased negative learning-related emotions (i.e., lower levels of emotional engagement or even disaffection, matching their disengaged behavior). By examining behavioral and emotional dimensions of engagement and disaffection, the current study aims to provide differentiated knowledge regarding the effect of popularity on engagement. Moreover, up until now, no study has investigated the role of popularity in long-term school engagement trajectories in secondary education. Nevertheless, more popular adolescents may be expected to have an increased risk of maladaptive engagement trajectories, especially when popularity is combined with aggressive behavior (Schwartz et al., 2006; Troop-Gordon, Visconti, & Kuntz, 2011).

1.4. The moderating role of aggression

Prior research has shown positive correlations between popularity and students' aggressive behavior. In fact, researchers have identified two distinct subgroups of popular students: (a) below-average aggressive students, who express kind, assertive and cooperative behavior, and (b) above-average aggressive students, who express physical and/or instrumental relational aggression (Cillessen & Mayeux, 2004; Troop-Gordon et al., 2011). Previous research suggests that the association between popularity and academic difficulties may only hold for above-average aggressive-popular students, who display less socially competent behavior (Schwartz & Gorman, 2011; Wentzel, 2009). Troop-Gordon et al. (2011) found that especially for elementary students with above-average levels of aggression, popularity predicted trajectories of increasing school avoidance and declining academic performance. They concluded that popularity places aggressive students at increased risk for school maladjustment. In secondary school (i.e., Grades 9 to 10), Schwartz et al. (2006) found that only for students with high levels of aggression, increases in popularity were related to increases in unexplained school absences.

Although these studies found support for the combined effect of popularity and aggression on engagement, evidence comes from either research in elementary school (e.g., Troop-Gordon et al., 2011), short-term longitudinal studies (e.g., Schwartz et al., 2006), or research that only focused on behavioral aspects of engagement. Thus, in order to gain a more complete understanding of the development of students' behavioral and emotional states during secondary school, more longitudinal studies that simultaneously investigate the various dimensions of engagement are needed (Janosz et al., 2008). Addressing this need, the current study used self-

report measures across secondary education (i.e., Grades 7 to 11) of both behavioral and emotional engagement, as well as behavioral and emotional disaffection.

1.5. The current study

This study investigates how peer likeability and popularity relate to adolescents' school engagement trajectories. Moreover, it examines whether these longitudinal associations are different for aggressive adolescents, and for boys versus girls. The current study adds to previous research in two important ways. First, by investigating long-term school engagement trajectories during secondary education (Grades 7 to 11, approximately 12 to 17 years), which is an important period in which peer relationships form an essential developmental context for students. Second, by taking a multidimensional perspective on peer status and school engagement, the latter including both behavioral and emotional engagement, as well as behavioral and emotional disaffection. Moreover, using an accelerated longitudinal study with three annual waves allows to investigate mean growth and individual differences regarding adolescents' school engagement trajectories (Duncan, Duncan, & Strycker, 2006).

1.6. Hypotheses

Based on previous research (De Laet et al., 2015; Schwartz et al., 2006; Wang & Eccles, 2012b), we expected a positive effect of peer likeability on engagement, such that students with higher levels of likeability would show higher initial levels of engagement and lower levels of disaffection in Grade 7 than other students. In addition, we expected that likeability would relate to less steep declines in engagement and we explored whether it would relate to less steep increases of disaffection between Grades 7 and 11. We hypothesized that being liked by peers would be beneficial not only for students' emotions regarding school (i.e., high emotional engagement and low disaffection), but would also provide resources for their involvement in learning activities (i.e., high behavioral engagement and low disaffection).

Regarding popularity, we expected that higher levels of popularity would negatively impact students' school engagement trajectories, especially concerning behavioral engagement (Galván et al., 2011). Specifically, we expected that more popular students would show lower initial levels of behavioral engagement and higher levels of behavioral disaffection in Grade 7, and possibly a less favorable growth between Grades 7 and 11, compared to less popular students. As previous research was primarily concerned with behavioral aspects of engagement and popularity, we explored how popularity relates to emotional engagement. On the one hand, more popular students may report higher levels of emotional engagement (enjoy going to school, because of their high status in the classroom), but expressing disengaged behaviors (in order to maintain their status). On the other hand, their low behavioral engagement may go hand in hand with reduced enthusiasm and increased negative emotions regarding learning and school (i.e., lower levels of emotional engagement, or even emotional disaffection).

In line with previous research, we expected aggression to moderate the relation between popularity and engagement, especially for behavioral engagement (Schwartz et al., 2006; Troop-Gordon et al., 2011). We hypothesized that students showing high popularity in combination with high levels of aggression would show maladaptive levels of behavioral engagement. As no previous study examined emotional engagement, as well as disaffection, we explored whether aggression also moderates the relation between popularity and emotional engagement dimensions. We expected that higher levels of aggression would be associated with lower levels of behavioral engagement, and higher levels of behavioral disaffection, as aggression has been found to be significantly related to poor concentration, misconduct, and overactivity (Ladd & Burgess, 2001).

Consistent with prior research, we expected to find that girls, on average, show higher initial levels and less steep declines of behavioral and emotional engagement compared to boys (Veronneau, Vitaro, Brendgen, Dishion, & Tremblay, 2010; Wang, Willett, & Eccles, 2011). Moreover, we tentatively expected that the longitudinal associations between peer status and engagement dimensions would be similar for boys and girls (De Laet et al., 2015).

2. Method

This study was part of the large-scale ongoing longitudinal STRATEGIES project (i.e., Studying Transactions in Adolescence: Testing Genes in Interaction with Environments) aimed at examining individual and contextual predictors of adolescents' behavioral development. The project started in 2011 and used an accelerated longitudinal design to follow students in Grades 7, 8, and 9 over three annual waves. Consequently, Wave 1 reflects spring measures from students in Grades 7, 8, and 9; Wave 2 includes students in Grades 8, 9, and 10; and Wave 3 refers to students in Grades 9, 10, and 11.

2.1. Participants

A total of 1116 adolescents participated at Wave 1 (51% male; M_{age} = 13.79, SD = 0.93), 987 at Wave 2, and 886 at Wave 3. Participants were from 121 classes across 9 secondary schools. All schools were located in the Flemish community of Belgium. On average, 86.7% of the adolescents in the selected classrooms participated in the study. Of the participating students, 36% were in Grade 7 (M_{age} = 12.88; SD = 0.49), 37.4% in Grade 8 (M_{age} = 13.84; SD = 0.50), and 26.6% in Grade 9 (M_{age} = 14.91; SD = 0.52) at the first wave of the study. For 9 students who had to repeat a grade (Grade 7 n = 3 and Grade 8 n = 6), only the first measurement was used in the analysis. Participants' age ranged between 11 and 17 years. Ninety-five percent of the students and 88.0% of their parents were born in Belgium. Most students lived in intact families (75.3%). Higher education was completed by

63.0% of the mothers and 58.0% of the fathers.

Participants who missed one or more waves differed significantly from participants who completed all waves on behavioral engagement ($F(1050) = 37.29$, $p < 0.001$), behavioral disaffection ($F(1050) = 54.52$, $p < 0.001$), emotional engagement ($F(1050) = 39.44$, $p < 0.001$), and emotional disaffection ($F(1050) = 12.69$, $p < 0.001$). Participants with missing values scored, on average, lower on behavioral engagement ($M_{difference} = 0.24$, $d = 0.40$) and emotional engagement ($M_{difference} = 0.27$, $d = 0.41$), and higher on behavioral disaffection ($M_{difference} = 0.31$, $d = 0.48$) and emotional disaffection ($M_{difference} = 0.12$, $d = 0.23$).

Sociometric nominations for at least 60% of the classmates were available for 622 adolescents from 35 classes at Wave 1 ($n = 184$ in 13 classes in Grade 7, $n = 197$ in 11 classes in Grade 8, and $n = 168$ in 11 classes in Grade 9), which is the minimum percentage recommended to obtain reliable sociometric measures with unlimited nominations (Wargo Aikins & Cillessen, 2007). Participants with missing values (i.e., < 60% of classmates' nominations available at Wave 1) on peer likeability and popularity differed significantly from participants without missing values on behavioral disaffection ($F(1050) = 4.20$, $p = 0.04$), emotional engagement ($F(1050) = 6.80$, $p = 0.01$), and emotional disaffection ($F(1046) = 4.09$, $p = 0.04$). Participants with missing values scored, on average, higher on behavioral disaffection ($M_{difference} = 0.08$, $d = 0.13$) and emotional disaffection ($M_{difference} = 0.07$, $d = 0.13$), and lower on emotional engagement ($M_{difference} = 0.10$, $d = 0.16$).

2.2. Procedure

This study was approved by the Internal Review Board of Medicine at KU Leuven. Prior to the data collection, a pilot study was conducted ($N = 200$) to test and improve the instruments. For the main study, 121 classes from 9 schools were randomly selected ($N = 2254$). Approximately 50% of the selected students agreed to participate. Active consent was requested from participants and parents. For the peer nominations, passive consent was obtained from the classmates, as this was presumed to yield a larger and more representative sample, and thus more valid results, compared to using active consent (Shaw, Cross, Thomas, & Zubrick, 2015). Moreover, data from the classmates were only used to provide reliable information concerning the peer status of the participants. Participating students were followed into their new classes in the next two waves as much as possible. In the Flemish educational system, students are assigned to a class group with whom they interact with and take courses throughout the school year. As most social interactions are with their classmates, a peer nomination procedure within the classroom was most appropriate.

Prior to the data collection, all participants were informed about the general aim of the study and received instructions about the procedure. In the classroom, participants were asked to fill out two booklets of questionnaires within two class hours (100 min). If the participants could not complete the questionnaires within the reserved time, they were asked to finish the questionnaires at home and return them in a closed envelope to the secretarial office at their school. For the peer nominations, each student received an alphabetical list of names of the classmates preceded by a number. For each sociometric question, participants were asked to write the number of the classmate they wanted to nominate. All data were processed anonymously.

2.3. Measures

2.3.1. School engagement

The Student Report on Engagement Versus Disaffection with Learning questionnaire was used to measure the school engagement dimensions (Skinner, Kindermann, & Furrer, 2008b). In addition, three items from the RAPS were included (IRRE, 1998), as they assess students' working behavior regarding school in general (two items for behavioral engagement), and their lack of preparation for class (one item for behavioral disaffection). A total of 30 items were rated on a 4-point scale ranging from 1 (*not true at all)* to 4 (*completely true*). Considering the minor additions to the Student Report on Engagement Versus Disaffection with Learning questionnaire, psychometric qualities of the original questionnaire are also likely to apply to the current questionnaire. Prior research indicated that these scales have strong psychometric properties, including internal consistency and construct-related validity (Fredricks & McColskey, 2012).

In total, four dimensions were assessed: behavioral engagement (7 items, Wave 1 $\alpha = 0.89$, Wave 2 $\alpha = 0.89$, Wave 3 $\alpha = 0.90$; e.g., “When I am in class, I listen very carefully”), behavioral disaffection (6 items, Wave 1 $\alpha = 0.83$, Wave 2 $\alpha = 0.82$, Wave 3 $\alpha = 0.85$; e.g., “When I am in class, I just act like I am working”), emotional engagement (5 items, Wave 1 $\alpha = 0.84$, Wave 2 $\alpha = 0.84$, Wave 3 $\alpha = 0.86$; e.g., “I enjoy learning new things in class”) and emotional disaffection (12 items, Wave 1 $\alpha = 0.83$, Wave 2 $\alpha = 0.85$, Wave 3 $\alpha = 0.86$; e.g., “When we work on something in class, I feel discouraged”). Mean scores were computed for each engagement dimension. A high value on the engagement dimensions refers to higher levels of behavioral and emotional participation in learning activities, whereas a high value on the disaffection dimensions reflects behavioral and emotional withdrawal from learning activities in the classroom.

2.3.2. Peer status

This study used unlimited classroom-based peer nominations at Wave 1 to obtain measures of students' peer likeability and popularity. In line with previous research, peer likeability was operationalized as the difference between acceptance (“Whom do you like most?”) and rejection (“Whom do you like least?”) nominations (Coie, Dodge, & Coppotelli, 1982). Popularity was operationalized as the difference between popularity (“Who is most popular?”) and unpopularity (“Who is least popular?”) nominations (Cillessen et al., 2011). The program SocStat (Thissen & Bendermacher, 2012) was used to calculate probability scores. The probability that a person is nominated by its classmates follows a generalized multinomial distribution, depending on the group size and the number of possible nominations (i.e., group size - 1). This means that the probability of receiving a nomination is

calculated based on the probability of being nominated by each of the classmates, taking the nomination pattern of the nominators into account. For a person with a raw score X on a criterion, the corresponding probability score is the probability of a score less than X plus half the probability of a score equal to X, with probabilities based on the generalized binomial distribution (Thissen & Bendermacher, 2012). Probability scores have possible values between 0 and 1, with a high value for peer likeability indicating that students were more frequently nominated as liked compared to the other classmates, and a high value for popularity indicating that students were more frequently nominated as popular compared to the other classmates.

The peer status measures were considered to be reliable when at least 60% of the classmates participated in the peer nomination procedure (Marks, Babcock, Cillessen, & Crick, 2013). Correlations between likeability and popularity (rs = 0.45 to 0.67) were in line with prior research, indicating that both are related but different dimensions of peer status (Cillessen et al., 2011). According to Cillessen et al. (2011), the unique construct validity of likeability and popularity can be assessed through correlations with unique behavioral correlates, such as aggression. In line with prior research, likeability showed a negative significant correlation with aggression, whereas popularity showed a positive (non-significant) correlation (Table 2) (Cillessen et al., 2011).

2.3.3. Aggression

The Youth Self Report (Achenbach, 1991) is one of the most commonly used standardized instruments for measuring self-reported competencies and problems in adolescents (Broberg et al., 2001). Nine items from the aggression subscale were selected to assess both physical and relational aggression (α = 0.74): “I argue a lot”, “I am mean to others”, “I destroy my own stuff”, “I destroy the stuff of others”, “I fight a lot”, “I physically attack people”, “I scream a lot”, “I tease others a lot”, and “I threaten to hurt people”. These items were rated on a 3-point scale ranging from 0 (*not at all*) to 2 (*clearly/frequently*). An aggression score was computed with high values indicating higher levels of aggressive behavior, and low values reflecting lower levels of aggressive behavior.

2.3.4. Covariates

Students' sex (0 = *boy*; 1 = *girl*) and parents' educational level (as an index of socio-economic status; SES) were included as covariates in the analyses. Parents were asked to report their highest educational level completed, ranging from 1 (*elementary school*) to 5 (*university*). SES scores were averaged across the two parents. Students' sex was also used for moderation analysis.

2.4. Statistical analyses

For descriptive purposes and to gain insight in the longitudinal and within-time associations of the main variables, correlational analyses were used. A correlations coefficient of ≤ 0.10 represents a weak or small association, ≤ 0.30 is considered as a moderate association, and ≥ 0.50 reflects a strong or large association (Cohen, 1988). Subsequently, confirmatory factor models and latent growth curve models were estimated using Mplus 7.31 software (Muthén & Muthén, 1998–2015). Model fit was evaluated based on the Tucker-Lewis Fit Index (TLI), average Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). CFI and TLI values of ≥ 0.90 are seen as indications of acceptable fit, and values of ≥ 0.95 as indications of good model fit (Byrne, 2012). For RMSEA, values of ≤ 0.06 are considered as indications of good model fit, ≤ 0.08 of sufficient model fit, between 0.08 and 0.10 of mediocre fit, and values ≥ 0.10 of poor model fit (Byrne, 2012).

Confirmatory factor analysis was performed to examine and confirm the presumed factorial structure of the school engagement questionnaire. Because the school engagement items were measured on a Likert scale, and thus reflect ordinal data, we selected the WLSMV estimator (Byrne, 2012; Li, 2016). Also, as emotional disaffection consists of 12 items covering three underlying factors of boredom, feeling bad, and worrying, we used a parceling approach based on item-to-construct balance (Little, Cunningham, Shahar, & Widaman, 2002). By doing so, three parcels (boredom, feeling bad, and worrying) were created based on items related to emotional disaffection. The use of parcels has several advantages, such as more parsimonious models, fewer chances for residuals to be correlated, and fewer chances of cross-loadings (Little et al., 2002).

Subsequently, latent growth curve modeling was conducted to model changes over time in school engagement and its predictors (Byrne, 2012). Accelerated longitudinal studies have time points that are missing due to the design of the study. A common and appropriate approach to examine cohort sequential data is to use full information maximum likelihood estimate (FIML; Parker, Marsh, Morin, Seaton, & Van Zanden, 2015), which uses all available information from the participants at each time point. This approach requires a re-organized dataset in such a way that each participant in our study (i.e., each line) is specified as having five measurement points (instead of three waves), with two of those being missing by design (Parker et al., 2015). This was executed with the Mplus “data cohort” command. Additionally, the clustering of students in classes was taken into account by applying the “complex analysis” option (Williams, 2000). In the latent growth curve models, intercept and slope at Time 1 were fixed to 0 in order to ensure that the intercept is interpreted as the average of individuals in the outcome variable at time 0 (Grade 7). Subsequent linear slope was fixed at 1, 2, 3, and 4 for T2, T3, T4, and T5, respectively. The slope is interpreted as the increase in the outcome variable when the time score increases one unit. Both linear and quadratic growth models were specified and compared to each other. Based on previous research, visual inspection of mean plots, and acceptable model fit indices, linear growth models were selected.

For each of the two engagement dimensions and two disaffection dimensions, two latent growth curve models were specified: a baseline model (e.g., containing no predictors) and a predictor model (e.g., including predictors of the intercept and slope). In the baseline model, 24 participants were excluded from the analysis (N = 1092) as they had missing values for all variables. With the predictor model, we aimed to explain differences in the engagement and disaffection dimensions between students using likeability, popularity, and aggression as predictors, while controlling for students' sex and socio-economic status. In the predictor model, one participant was excluded from the analysis who had missing values on all variables, and nine participants were excluded as they had

missing values on all variables, except sex ($N = 1106$).

In addition, moderation analyses were conducted for sex and aggression. Moderation by sex was executed using multiple group analyses for boys ($n = 569$) versus girls ($n = 546$). First, in the unconditional model, constraints are placed on the means, variances, and correlation of the intercept and slope of the engagement dimensions. Second, in the predictor model, sex differences were tested by placing constraints on the coefficients of likeability, popularity, and aggression predicting the intercept and slope. As SES was non-significant in the predictor models, SES was not included in the moderation analysis. A non-significant decrease in model fit indicates that the constraints were justified, ΔS-B χ^2, $p > 0.05$. Subsequently, moderation by aggression was tested by adding an interaction effect between popularity and aggression to the predictor models. Simple slopes for low ($-1SD$) and high ($+1SD$) popularity, as well as regions of significance, were examined to probe moderation effects (Preacher, Curran, & Bauer, 2006). The region of significance indicates values of the aggression variable (low -1*SD*; average; high $+1SD$) at which the regression lines of low and high popularity become statistically significantly different.

Latent growth curve models assume normally distributed variables, the necessity of large samples, similar change in type of trajectory for all individuals, and repeated measures with equal intervals. Sample size was adequate for the use of latent growth curve models (Curran, Obeidat, & Losardo, 2010) and measurements had equal one-year intervals. To test the assumption whether all individuals follow a similar type of trajectory, model fit of the baseline model is evaluated. An adequate fit of the baseline model indicates that this assumption has been met. Furthermore, the engagement variables were non-normally distributed (skewness ranged between -0.79 [$SE = 0.08$] for behavioral engagement and 0.64 [$SE = 0.08$] for behavioral disaffection; kurtosis ranged between -0.29 [$SE = 0.15$] for emotional engagement and 0.36 [$SE = 0.15$] for behavioral engagement). However, in large samples, such as in the current study, these values reach significance when there are only slightly different from a normal distribution. Nevertheless, we used the robust maximum likelihood estimator (MLR) and full information maximum likelihood (FIML) in Mplus to handle both non-normal distributed and missing data (Muthén & Muthén, 1998–2015).

3. Results

3.1. Preliminary analyses

Descriptive statistics of the main variables are presented in Table 1. As can be seen in Table 2, large to medium (Cohen, 1988) cross-year stability correlations were found for all engagement dimensions. Behavioral engagement was negatively related to behavioral disaffection ($rs = -0.36$ to -0.73, $p < .001$), and emotional engagement was negatively related to emotional disaffection ($rs = -0.26$ to -0.58, $p < .001$), suggesting small to large interrelatedness. Correlations between behavioral and emotional engagement ($rs = 0.55$ to 0.60, $p < 0.001$), and emotional and behavioral disaffection ($rs = 0.48$ to 0.50, $p < 0.001$) were moderate to large. The correlation between likeability and popularity was large, $r = 0.55$, $p < 0.001$ (Cohen, 1988). Higher popularity was associated with higher levels of behavioral and emotional disaffection and lower levels of behavioral and emotional engagement. In contrast, peer likeability was not related to school engagement, except for a positive correlation with emotional engagement at Wave 1. Moreover, girls displayed higher levels of engagement and lower levels of disaffection compared to boys. Aggression was negatively related to behavioral and emotional engagement, and positively associated with behavioral and emotional disaffection.

3.2. Confirmatory factor analysis

Confirmatory factor analysis was performed to investigate the presumed factorial structure of school engagement. First, we examined whether there is support for the existence of a unidimensional construct of school engagement that combines behavioral and emotional engagement and disaffection into one-factor. Results showed a poor fit between the model and the data, $\chi^2(189) = 5398.285$, $p < 0.001$, CFI = 0.79, TLI = 0.77, RMSEA = 0.16. Next, we specified two two-factor models that distinguishes dimensions of (a) engagement versus disaffection, and (b) behavior versus emotions. Both two-factor models had unacceptable model fit indices: engagement versus disaffection, $\chi^2(188) = 3926.594$, $p < 0.001$, CFI = 0.85, TLI = 0.83, RMSEA = 0.14, and behavior versus emotions, $\chi^2(188) = 3900.283$, $p < 0.001$, CFI = 0.85, TLI = 0.84, RMSEA = 0.14). Subsequently, a four-factor model was estimated that differentiates between behavioral and emotional dimensions of engagement and disaffection. This model had mediocre fit between the model and the data, $\chi^2(183) = 2638.414$, $p < 0.001$, CFI = 0.90, TLI = 0.89, RMSEA = 0.11. By including three error correlations[1], the four-factor model had a good fit to the data, $\chi^2(180) = 1395.92$, $p < 0.001$, CFI = 0.95, TLI = 0.94, RMSEA = 0.08 [90% CI = 0.076, 0.084]. Furthermore, similar model fit was obtained in Wave 2 ($\chi^2(180) = 1460.56$, $p < 0.001$, CFI = 0.94, TLI = 0.93, RMSEA = 0.09 [90% CI = 0.084, 0.092], and Wave 3 ($\chi^2(180) = 1668.71$, $p < 0.001$, CFI = 0.94, TLI = 0.93, RMSEA = 0.10 [90% CI = 0.096, 0.105]. The standardized factor loadings were all significant and with an average loading over the three waves of 0.81 on behavioral engagement, 0.72 on behavioral disaffection, 0.76 on emotional engagement, and 0.59 on emotional disaffection. The correlation among the four latent factors were moderate to large (0.44 to 0.81), suggesting that the engagement dimensions were correlated yet distinct from each other.

[1] Item 16 ("Class is fun") with item 14 ("When I'm in class, I feel good"), item 10 ("When I'm in class, my mind wanders") with item 9 ("When I'm in class, I think about other things"), and item 5 ("I pay attention in class") with item 4 ("When I'm in class, I listen very carefully").

Table 1
Descriptive statistics of the main variables per grade.

	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11
n	403	777	980	597	227
Sex (male) %	56.30	53.30	50.23	45.90	41.30
Age (*SD*)	12.89(0.02)	13.91(0.02)	14.88(0.03)	15.85(0.04)	16.92(0.04)
Behavioral engagement (*SD*)	3.36(0.55)	3.20(0.58)	3.06(0.62)	3.03(0.65)	3.04(0.63)
Behavioral disaffection (*SD*)	1.87(0.66)	1.93(0.62)	2.08(0.62)	2.10(0.64)	2.18(0.63)
Emotional engagement (*SD*)	3.04(0.63)	2.88(0.66)	2.84(0.63)	2.84(0.64)	2.88(0.57)
Emotional disaffection (*SD*)	1.92(0.56)	1.96(0.51)	1.96(0.50)	1.99(0.51)	1.93(0.52)
Likeability (*SD*)	0.59(0.34)	0.58(0.34)	0.59(0.33)	–	–
Popularity (*SD*)	0.51(0.30)	0.53(0.32)	0.54(0.31)	–	–
Aggression (*SD*)	0.29(0.24)	0.30(0.22)	0.32(0.24)	–	–

3.3. Latent growth curve modeling

3.3.1. Trajectories of school engagement

A baseline model was specified for each engagement dimension. The goodness-of-fit indices for each model were acceptable (behavioral engagement: $\chi^2(7, N = 1092) = 53.11$, $p < 0.001$, RMSEA = 0.08, CFI = 0.94, TLI = 0.94; behavioral disaffection: $\chi^2(7, N = 1092) = 22.03$, $p = 0.003$, RMSEA = 0.04, CFI = 0.98, TLI = 0.98; emotional engagement: $\chi^2(7, N = 1092) = 28.91$, $p < 0.001$, RMSEA = 0.05, CFI = 0.95, TLI = 0.95; emotional disaffection: $\chi^2(7, N = 1092) = 7.12$, $p = 0.42$, RMSEA = 0.004, CFI = 1.00, TLI = 1.00). Both intercept and slope were significantly different from zero for behavioral engagement ($M_I = 3.31$, $p < 0.001$; $M_{s.} = -0.12$, $t = -8.93$, $p < 0.001$), behavioral disaffection ($M_I = 1.89$, $p < 0.001$; $M_{s.} = 0.09$, $p < 0.001$), and emotional engagement ($M_I = 2.96$, $p < 0.001$; $M_{s.} = -0.06$, $p < 0.001$), but the mean slope of emotional disaffection was not ($M_I = 1.94$, $p < 0.001$; $M_{s.} = 0.02$, $p = 0.15$). As illustrated in Fig. 1, the four engagement dimensions partly differed in their trajectories. For instance, students reported relatively high initial levels of behavioral engagement which declined during secondary education, whereas students reported moderate levels of behavioral disaffection which increased over time. For emotional engagement students reported relatively high levels in Grade 7, but reported declines during secondary education. In contrast, students' emotional disaffection remained stable between Grades 7 and 11.

Variances around the intercept and slope were also significant for behavioral engagement ($D_i = 0.21$, $p < 0.001$; $D_s = 0.02$, $p < 0.001$), behavioral disaffection ($D_i = 0.29$, $p < 0.001$; $D_s = 0.03$, $p < 0.001$), emotional disaffection ($D_i = 0.17$, $p < 0.001$; $D_s = 0.02$, $p = 0.004$), but not for the slope of emotional engagement ($D_i = 0.22$, $p < 0.001$; $D_s = 0.01$, $p = 0.11$). This suggests that there is variation in the intercept and trajectory of all school engagement dimensions, except for the trajectory of emotional engagement.

3.3.2. Predictors of school engagement trajectories

For each of the engagement dimensions, predictor models were specified by including likeability, popularity, aggression, sex, SES, and the interaction between popularity and aggression as predictors of the intercept and slope of engagement. Model fit was acceptable for each dimension (behavioral engagement: $\chi^2(30, N = 1106) = 94.65$, $p < 0.001$, RMSEA = 0.04, CFI = 0.94, TLI = 0.92; behavioral disaffection: $\chi^2(30, N = 1106) = 75.91$, $p < 0.001$, RMSEA = 0.04, CFI = 0.95, TLI = 0.94; emotional engagement: $\chi^2(30, N = 1106) = 92.43$, $p < 0.001$, RMSEA = 0.04, CFI = 0.91, TLI = 0.89: emotional disaffection: $\chi^2(30, N = 1106) = 56.63$, $p < 0.01$, RMSEA = 0.03, CFI = 0.96, TLI = 0.95).

Parameter estimates for the predictor models are presented in Table 3. Results indicated that likeability was a significant and positive predictor of the initial levels of behavioral and emotional engagement, but not for behavioral and emotional disaffection. Specifically, higher likeability was associated with higher levels of behavioral and emotional engagement in Grade 7. Likeability did not predict decreases or increases in the engagement dimensions over time, except for emotional disaffection. The more students were liked, the steeper their increase in emotional disaffection during secondary education. In contrast, popularity significantly predicted both behavioral engagement and disaffection. More popularity was associated with lower levels of behavioral engagement and higher levels of behavioral disaffection in Grade 7. For popularity, no significant effect was found for the slope of the engagement dimensions. Furthermore, students' self-reported aggressive behavior predicted lower initial levels of behavioral and emotional engagement, and higher initial levels of behavioral and emotional disaffection. Despite these negative effects, aggression was also related to less steep increases in behavioral and emotional disaffection between Grade 7 and 11. Additionally, results showed that girls reported less steep decreases in behavioral engagement and less steep increases in behavioral disaffection than boys. The predictor models explained significant variation in intercept and slope for behavioral engagement (31.1% of the intercept variance and 15.8% of the slope variance), behavioral disaffection (25.8% of the intercept variance and 10.4% of the slope variance), emotional engagement (20.0% of the intercept variance; 17.3% of the slope variance, $p = 0.26$), and emotional disaffection (20.6% of the intercept variance and 15.8% of the slope variance).

The results from this study highlighted the importance of distinguishing between likeability and popularity, and examining the differences between the four engagement dimensions. In sum, results indicated that likeability was primarily related to the positive behavioral and emotional engagement dimensions, whereas popularity was associated with both behavioral engagement and

Table 2
Correlation table of the main variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Beh. Eng.W1	1																
2. Beh. Eng.W2	0.63**	1															
3. Beh. Eng.W3	0.52**	0.66**	1														
4. Beh. Dis.W1	− 0.63**	− 0.48**	− 0.42**	1													
5. Beh. Dis.W2	− 0.48**	− 0.63**	− 0.53**	0.56**	1												
6. Beh. Dis.W3	− 0.41**	− 0.54**	− 0.68**	0.44**	0.64**	1											
7. Emo. Eng.W1	0.60**	0.39**	0.33**	− 0.45**	− 0.30**	− 0.30**	1										
8. Emo. Eng.W2	0.37**	0.50**	0.40**	− 0.29**	− 0.39**	− 0.33**	0.50**	1									
9. Emo. Eng.W3	0.33**	0.40**	0.55**	− 0.30**	− 0.39**	− 0.46**	0.45**	0.59**	1								
10. Emo. Dis.W1	− 0.31**	− 0.22**	− 0.20**	0.50**	0.32**	0.26**	− 0.45**	− 0.34**	− 0.34**	1							
11. Emo. Dis.W2	− 0.21**	− 0.26**	− 0.30**	0.35**	0.48**	0.40**	− 0.31**	− 0.46**	− 0.41**	0.49**	1						
12. Emo. Dis.W3	− 0.18**	− 0.20**	− 0.31**	0.27**	0.35**	0.48**	− 0.29**	− 0.35**	− 0.45**	0.42**	0.55**	1					
13. LikeabilityW1	0.07	0.02	− 0.04	− 0.02	0.02	0.02	0.08*	0.04	− 0.02	− 0.06	0.06	0.05	1				
14. PopularityW1	− 0.17**	− 0.18**	− 0.19**	0.17**	0.16**	0.16**	− 0.04	− 0.07	− 0.10*	0.07	0.08	0.05	0.55**	1			
15. AggressionW1	− 0.37**	− 0.25**	− 0.24**	0.34**	0.28**	0.21**	− 0.27**	− 0.19**	− 0.22**	0.29**	0.19**	0.16**	− 0.15*	0.05	1		
16. Sex	0.13**	0.16**	0.21**	− 0.06	− 0.09**	− 0.12**	0.08**	0.08**	0.11**	− 0.05	− 0.03	0.03	0.06	− 0.02	− 0.11**	1	
17. SES	0.02	− 0.02	− 0.03	− 0.07	− 0.01	− 0.02	0.08*	0.04	0.04	− 0.08*	− 0.01	0.01	0.08	0.05	− 0.06	− 0.07	1

Beh. Eng./Dis. = behavioral engagement/disaffection; Emo. Eng./Dis. = emotional engagement/disaffection; W1 = Wave 1; W2 = Wave 2; W3 = Wave 3.

* $p < 0.05$.

** $p < 0.001$.

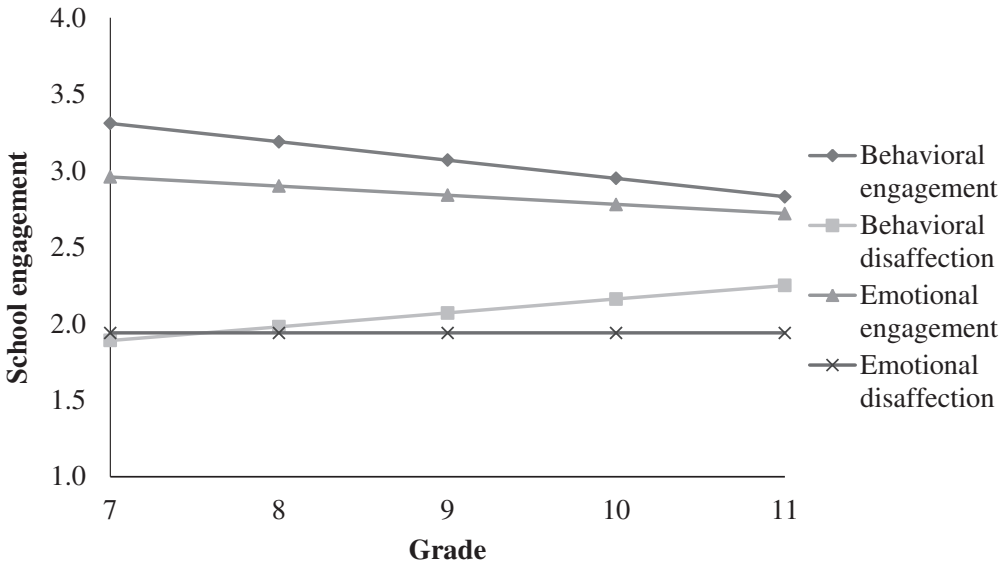

Fig. 1. Estimated trends of school engagement for Grades 7–11.

disaffection.

3.3.3. Moderation by aggression and sex

Results indicated a small, but significant moderation effect of aggression on the relation between initial levels of popularity and behavioral engagement (Table 3), $\Delta R^2 = 3.1\%$. As illustrated in Fig. 2, estimation of the region of significance showed a significant effect of aggression when adolescents' popularity was average (simple slope $= -0.12(SE = 0.03)$, $t(1109) = -4.80$, $p < 0.001$) or

Table 3
Standardized estimates of the predictor models for school engagement dimensions.

	β Intercept	*SE*	*β Slope*	*SE*
Behavioral engagement				
Likeability	0.230***	0.061	− 0.180	0.093
Popularity	− 0.261***	0.055	− 0.068	0.095
Aggression	− 0.419***	0.052	0.146	0.078
Popularity* aggression	− 0.166*	0.081	0.172	0.113
Sex	0.075	0.042	0.207**	0.070
SES	0.010	0.051	0.036	0.078
Behavioral disaffection				
Likeability	− 0.089	0.081	0.021	0.100
Popularity	0.188**	0.064	0.095	0.081
Aggression	0.433***	0.061	− 0.233**	0.091
Popularity* aggression	0.121	0.065	− 0.104	0.107
Sex	0.001	0.043	− 0.151*	0.060
SES	− 0.071	0.047	0.022	0.065
Emotional engagement				
Likeability	0.172*	0.077	− 0.217	0.173
Popularity	− 0.064	0.071	− 0.168	0.113
Aggression	− 0.346***	0.065	0.157	0.127
Popularity* aggression	0.053	0.070	0.053	0.129
Sex	0.131	0.053	0.131	0.110
SES	− 0.024	0.059	− 0.024	0.114
Emotional disaffection				
Likeability	− 0.134	0.089	0.279*	0.115
Popularity	0.121	0.084	− 0.114	0.118
Aggression	0.373***	0.056	− 0.189*	0.086
Popularity* aggression	0.088	0.074	− 0.071	0.110
Sex	− 0.066	0.050	0.108	0.065
SES	− 0.107			

* $p \leq 0.05$.
** $p \leq 0.01$.
*** $p < 0.001$.

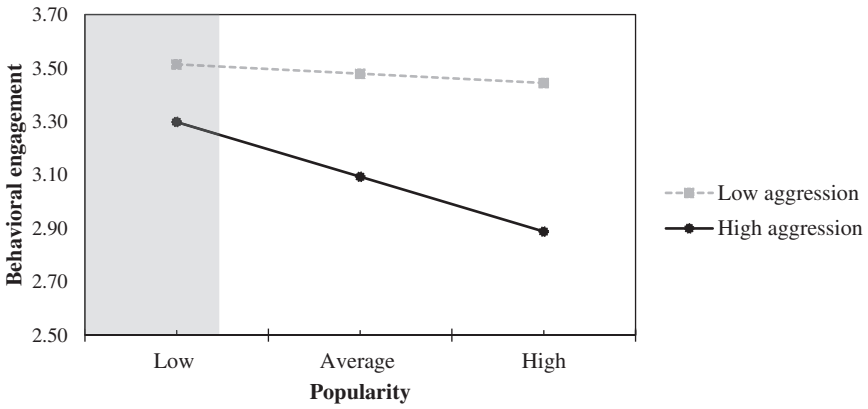

Fig. 2. Moderation effect of aggression on the relationship between popularity and behavioral engagement in Grade 7.Note. White area is region of significance. Low, average, and high refer to -1*SD*, mean, and +1*SD*, respectively.

high (simple slope = −0.21(*SE* = 0.05), $t(1109) = -3.90$, $p < 0.001$) (i.e., above −0.64 *SD*). As expected, average or high levels of popularity predicted lower initial levels of behavioral engagement only when combined with high levels of aggression. At lower levels of popularity, there were no significant differences between aggressive and non-aggressive adolescents in behavioral engagement. For the other engagement dimensions, no significant interaction effects between popularity and aggression were found.

Furthermore, investigating moderation by sex in the baseline model, results showed significant differences between boys and girls in the mean slope of behavioral engagement (ΔS-B $\chi^2(4) = 8.71$, $p = 0.07$), behavioral disaffection (ΔS-B $\chi^2(4) = 3.52$, $p = 0.48$), and emotional engagement (ΔS-B $\chi^2(4) = 6.13$, $p = 0.19$). For emotional disaffection, boys and girls differed in their variances around the intercept, ΔS-B $\chi^2(4) = 8.22$, $p = 0.08$. In contrast, no sex differences were found in the predictor model for behavioral engagement (ΔS-B $\chi^2(10) = 13.81$, $p = 0.18$), behavioral disaffection (ΔS-B $\chi^2(11) = 16.35$, $p = 0.13$), emotional engagement (ΔS-B $\chi^2(10) = 14.28$, $p = 0.16$), or emotional disaffection (ΔS-B $\chi^2(11) = 14.71$, $p = 0.20$). This indicates similar longitudinal associations of likeability, popularity, and aggression with behavioral engagement for boys and girls.

4. Discussion

School engagement is important during students' educational career as it relates to students' achievement, school attendance, grade retention, graduation, and academic resilience (Fredricks et al., 2004). The current study provided differentiated insights into the association between adolescents' school engagement and their peer social environment by taking a multidimensional perspective on school engagement (i.e., behavioral and emotional engagement and disaffection) and peer status (i.e., likeability and popularity). Furthermore, this study examined how adolescents' aggressive behavior moderates the association between popularity and engagement, and investigated sex differences in the engagement dimensions.

By adopting a multidimensional approach to school engagement in a study on a large heterogeneous sample that covers almost the whole period of secondary education, we found that students reported, on average, relatively high levels of behavioral engagement and emotional engagement in Grade 7, but showed declines in these engagement dimensions during secondary education (Li et al., 2011). This indicates that students become less actively involved in learning activities over time, but also do so with less and less enthusiasm and enjoyment.

In addition, students reported, in general, moderate levels of behavioral disaffection at the start of secondary school, but increased in their unpreparedness and passivity over time. In contrast, emotional disaffection remained stable during secondary education. This denotes that, in general, there was no increase of emotions that reflect maladaptive motivational states (i.e., emotional disaffection), but rather a decline of positive emotions related to schooling (i.e., emotional engagement) as reported by the student. Despite this general decline in school engagement across secondary education, considerable individual differences in initial levels and growth were found.

The main aim of this study was to shed light on how students' school engagement trajectories are shaped by peer relationships. In line with current thinking about peer relationship dimensions (Cillessen et al., 2011), we distinguished between peer likeability and popularity. Results from this study highlight the importance of this distinction, and examining the differences between the four engagement dimensions. Consistent with our expectations and previous research (De Laet et al., 2015; Wang & Eccles, 2012b), we found that likeability was primarily associated with the positive engagement dimensions. Specifically, students who were more liked by their peers tended to show more involvement and participation in learning activities and have more positive emotions regarding learning activities, such as interest, enjoyment, and enthusiasm. In contrast, likeability was not associated with behaviors and emotions that reflect maladaptive motivational states in Grade 7. Also, likeability was not related to the growth of engagement, except for emotional disaffection. Although likeability proved to be beneficial for both emotional and behavioral dimensions of engagement, the explaining mechanisms are not necessarily similar. For instance, for behavioral engagement, research has suggested that likeability contributes to the development of high self-esteem, which in turn promotes initiative and behavioral engagement in the classroom (Wentzel, Wigfield, & Miele, 2009). On the other hand, likeability may also increase students' sense of belonging, which

may be key to enhancing students' emotional involvement in school (Wentzel et al., 2009).

This study extends prior research by investigating the role of popularity in long-term trajectories of school engagement. It showed that popularity was predominantly related to behavioral components of school engagement. As expected, results revealed that popularity predicted lower initial levels of behavioral engagement and higher initial levels of behavioral disaffection, and denoted the potential risks associated with popularity. However, popularity was not related to developments in engagement dimensions. This indicates that higher levels of popularity predict lower levels of effort, attention, and participation, and higher levels of passivity, distraction, and unpreparedness in Grade 7. A possible explanation is that at the start of secondary school, students start building their reputation and display behaviors that contribute to that reputation. Consequently, it could be the case that more popular students show less behavioral engagement and more disaffection in order to increase their status as popular (LaFontana & Cillessen, 2010). Another explanation could be that influence and/or selection processes occurred so that more popular students are less engaged because they have and/or select friends who are less engaged as well. Indeed, post-hoc analyses showed significant associations between students' popularity and their friends' level of behavioral engagement ($r = -0.21$) and disaffection ($r = 0.19$), and emotional engagement ($r = -0.11$) and disaffection ($r = 0.15$). This suggests that higher popularity is related to lower levels of engagement and higher levels of disaffection in the friend group. Furthermore, our study revealed only associations between popularity and behavioral aspects of engagement, whereas Troop-Gordon et al. (2011) also found that popularity was positively related to emotional engagement (i.e., school liking). However, this effect could be specific for the younger age group (Grades 4 and 5) or caused by the fact that the authors did not statistically control for the overlap between popularity and likeability (Cillessen et al., 2011; Schwartz et al., 2006).

Furthermore, this study provided insights in the moderating role of aggression in the relationship between popularity and school engagement. As expected, our study revealed that students' aggressive behavior is detrimental for all school engagement dimensions measured in Grade 7. In contrast, aggression was associated with less steep increases in behavioral and emotional disaffection over time. A possible explanation for this finding is the possibility of a “ceiling effect”: the change of an individual will be small if the initial levels are high (Gottman & Rushe, 1993). More aggressive students also start with higher levels of behavioral and emotional disaffection compared to other students, and consequently cannot increase as much in their behavioral and emotional disaffection as other students. Thus, the protective effect of aggression should therefore be interpreted with caution.

In addition, the current study found support for the differential moderating effect of aggression in the relationship between popularity and school engagement. It extends previous research by showing that this moderating effect is true only for behavioral engagement (not for emotional engagement) and at certain levels of popularity. More aggressive students with average or high levels of popularity tend to report lower levels of behavioral engagement in Grade 7 compared to students low on aggression with similar levels popularity. This was consistent with prior research that revealed that popular non-aggressive adolescents are, in general, more academically oriented, whereas popular-aggressive adolescents tend to devalue school and show more indications of school maladjustment, such as absenteeism and poor academic progress (Farmer, Estell, Bishop, O'Neal, & Cairns, 2003; Rodkin, Farmer, Pearl, & Van Acker, 2000; Schwartz et al., 2006; Troop-Gordon et al., 2011).

Moreover, our study revealed sex differences in school engagement. Consistent with prior research (e.g., Wang et al., 2011), girls report less steep decreases in behavioral engagement and less steep increases in behavioral disaffection compared to boys during secondary education. These results denote that boys are at increased risk for showing maladaptive engagement trajectories. In contrast, the effect of likeability and popularity on school engagement is similar for both sexes, indicating that peer status and aggression are equally important for both boys' and girls' engagement trajectories.

An important strength of this study is its longitudinal design. However, we found few longitudinal relations between peer status and the development of engagement. One possible explanation for this could be that peer status was measured at Wave 1 and was not included as a time-varying predictor. On the other hand, peer status is a stable construct and its priority peaks in late middle school and early high school years (LaFontana & Cillessen, 2010), which might explain the findings regarding popularity at the start of secondary school.

In conclusion, our study supports the notion that peer relationships are related to students' school engagement trajectories. This study provided insights in the complexity of peer dynamics in relation to adolescents' school engagement, by establishing that the two forms of peer status relate differently to the behavioral and emotional dimensions of engagement. Whereas likeability in the peer group forecasts better engagement outcomes at the start of secondary education, being perceived as popular among peers was found to contribute in a negative way to students' behavioral engagement dimensions in Grade 7. Furthermore, aggression moderated the relation between popularity and behavioral engagement. In addition, our study revealed that peer status was predominantly related to initial levels of school engagement, and to a lesser extent the development of engagement.

4.1. Limitations and future directions

The current findings should be interpreted considering a few limitations. First, the low participation rate in the peer nomination procedure might have biased the results. Whereas the estimation of the engagement trajectories was based on our original sample of 1116 students, the effect of likeability and popularity was based on 622 participants (due to the 60% criterion). However, in order to reliably estimate the trajectories of engagement it was important to use the large sample, as this provided a more valid representation of students' development in secondary school. Moreover, although less participants were used to estimate the effect of peer status on engagement, we strongly believe that using the 60% criterion was necessary in order to obtain reliable peer status measures (Marks et al., 2013). Also, comparison between participants with and without peer status measures showed only small differences in behavioral disaffection, emotional engagement, and emotional disaffection.

Second, the current study used self-report of engagement and aggression, which could lead to shared method variance. Nevertheless, self-report measures on engagement are commonly used and are particularity useful for assessing emotional engagement as students' emotional states are not directly observable for outsiders. For behavioral engagement, other measures, such as attendance or homework completion rates, could also be used as a more objective way of assessing students' behavioral involvement in school. Regarding self-reported aggression, future research could benefit from including other informants to measure adolescents' aggression, as parents, peers, and teachers ratings might yield different insights (Clemans, Musci, Leoutsakos, & Ialongo, 2014).

Third, it is important to replicate the findings in other population samples, such as minority families, as peer status might be differently related to school engagement (Graham, Taylor, & Ho, 2009). However, because the response rate and representativeness of our study is comparable to previous large scale research in Flanders (Guérin et al., 2012), our results may be generalizable to the broader population. Moreover, our study included schools of different sizes, which is an important factor to consider, as smaller schools have been shown to relate to higher levels of student participation, satisfaction, and attendance (Finn & Zimmer, 2012). Another direction for future research could be to investigate characteristics of the peer group that determine one's peer status. For instance, the consequences of being popular, such as lower behavioral engagement and higher disaffection, could be dependent on the characteristics of the classmates who nominate the students as popular. In general, the study calls for more research on the processes that may explain the lower engagement levels of more popular students.

Consistent with previous research, this study considered peer relationships as a predictor of school engagement trajectories. However, school engagement may, in turn, influence peer relationships over time. Thus, an important direction for future research is to examine possible reciprocal influences of both variables over time (e.g., Engels et al., 2016). Future research could also focus on social-cognitive processes, such as goal-orientation of popular students. Such analyses may provide important additional information on why some popular students are more at risk for maladaptive engagement trajectories. Another direction for future research is to examine the role of acceptance in cliques instead of classes. When moving into adolescence, acceptance by the clique or friendship network may become more important than acceptance by the class (Rubin et al., 2006; Rubin et al., 2009). Also, studies aimed at discovering clique norms could yield important insights in the effect of adolescents' peer relationships on school engagement trajectories, as students' behavior is supposed to be directed by the typical attributes of these groups (i.e., descriptive norms) (Farmer et al., 2011). For instance, it could be possible that popular students belonging to a deviant peer group (characterized by antisocial and problem behaviors) show less engaged behaviors compared to popular students belonging to an academically oriented peer group (characterized by high academic involvement) (Sussman, Pokhrel, Ashmore, & Brown, 2007).

In addition, the combined role of other social relationships for the different school engagement dimensions should be investigated further. For instance, previous research found that close, supportive teacher-student interactions are key in students' academic success, academic achievement and engagement (Roorda et al., 2011; Sabol & Pianta, 2012). It would be important for future research to investigate the independent and joint effects of both school social relationships on adolescents' engagement and achievement trajectories.

4.2. Practical implications

The current findings underscore the importance of distinguishing between likeability and popularity, and behavioral and emotional engagement, as well as disaffection. Consequently, this study provides valuable information for interventions that promote school engagement. In particular, our study revealed that popularity places students at increased risk for maladaptive behavioral engagement at the start of secondary education, in particular, when popularity is combined with high levels of aggression. Therefore, it is important to create awareness among teachers and school psychologists about the negative consequences of being popular and being aggressive for school engagement, as these professionals could play a key role in identifying these at-risk students. Moreover, interventions at the start of secondary school could prevent (popular) students from becoming behaviorally disengaged. These interventions should be aimed at promoting students' initiative, efforts, and attention in class, and at the same time deceasing students' distraction, unpreparedness, and passivity during learning activities. For instance, when students enter secondary school, teachers could provide them with learning activities that are authentic, challenging, hands-on, relevant to students' experiences and concerns, and that allow students to choose their own direction and are suitable for cooperative group work (Skinner & Pitzer, 2012).

Furthermore, interventions could also focus on stimulating acceptance in the peer group, as this study showed that well-liked students, on average, tend to report higher levels of behavioral and emotional engagement in Grade 7. Positive peer relationships can contribute to students' achievement, engagement, and well-being. Consequently, it is important that schools allocate time for social and emotional learning programs that promote skills that are essential for positive peer relationships. Evidence-based interventions specially aimed at increasing peer acceptance for adolescents are scarce. However, interventions for socio-emotional learning provide students with the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, and establish and maintain positive relationships (Collaborative for Academic Social and Emotional Learning; CASEL, 2013, 2015). By doing so, students' social behavior (e.g., getting along with and cooperating with others) and attitudes towards school are improved. Nevertheless, our study showed mainly positive effects of likeability at the start of secondary school, which denotes the importance of implementing interventions as soon as students enter secondary education.

In addition, this study showed that boys, in comparison to girls, are at particular risk for becoming behaviorally disengaged during secondary education. Consequently, it is important to closely monitor boys' development of behavioral engagement and intervene in the development of behavioral disaffection whenever possible.

Although these specific groups of students could be targeted individually, interventions could also focus on changing the peer

group attitudes towards engagement. School psychologists may play an important role in changing the peer culture and stimulating school engagement by reducing school aggression and promoting peer relationships among adolescents by assisting schools to implement intervention programs. An example of an intervention that addresses both peer culture and school engagement, is a developmentally based one-year intervention program by Hamm et al. (2010). This program focuses on three components: promoting school engagement (i.e., by providing structured formats for instructional activities that maintain attention and involvement of the students), enhancement of behavioral management (i.e., by centering proactive and effective classroom behavior management strategies), and management of social dynamics (i.e., by creating teachers' awareness of the classroom social dynamics in relation to students' school engagement). This program showed to be effective in creating more positive peer group attitudes towards schooling (i.e., perceptions of acceptance of academic effort and achievement among their peers).

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